

## Annotated List of Birds Observed on Christmas Island, October to December 1953

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IN OCTOBER 1953, the Pacific Oceanic Fishery Investigations of the U. S. Fish and Wildlife Service landed a small field party (the author and Mr. Richard Shomura) on Christmas Island for the purpose of installing weather instruments and sea thermographs, and to conduct a tuna bait-fish survey of the lagoon. We were on the island from October 23 to December 9, 1953, and although our time was generally occupied with the duties mentioned above, we had many opportunities to observe the interesting bird life of the island. As Christmas and other islands of the Line Island group (Fanning, Washington, and Palmyra) are rarely visited by ornithologists, we thought it worthwhile to report our observations.

The author is indebted to Dr. Frank Richardson for his helpful review of the manuscript.

Christmas Island (Fig. 1), lies in the equatorial Pacific about 1,200 miles south of Hawaii at 2° N. latitude, 157° W. longitude. It is about 35 miles in length, in a northwest-southeast direction, and about 17 miles in width. The island is a large coral atoll with a perimeter of about 105 miles. Enclosed within the outer coast is an area estimated at 382 square miles, of which approximately 250 are land and 107 are lagoon; about 25 square miles are occupied by numerous salt lakes (Wentworth, 1931). The island is generally

low, averaging about 10 feet or less in elevation, except along the southern shore of the Bay of Wrecks where there are scattered sand dunes which may reach 40 feet in height.

The rainfall is quite variable but averages 25 to 35 inches a year (Bryan, 1942). Fragmentary records show an annual range from 10 inches to as much as 100 inches. The air temperature varies from a minimum of 68° or 70° F. to a maximum of 106° F. (Wentworth, 1931).

Christophersen (1927) records 24 species of vascular plants as growing naturally on Christmas Island. These include *Tournefortia argentea* trees, clumps of *Scaevola frutescens* and other low shrubs, grasses, and herbs. Although all the coconut palms now seen on the island have been planted, there were a few palm trees present at the time of Captain Cook's visit in 1777. There are now extensive coconut groves in the northwestern, northern, southwestern, and southern parts of the island.

The vertebrate fauna of the island consists mainly of the fishes that abound in the lagoon and coastal waters and the abundant bird life that forms the subject of this report. In addition there are lizards, rats, and cats; many of the latter roam in a wild state, and while they may help keep down the rat population, they also without doubt prey on the ground-nesting birds.

Great Britain claims sovereignty over the island and has brought in natives from the Gilbert and Ellice Colony to provide a labor

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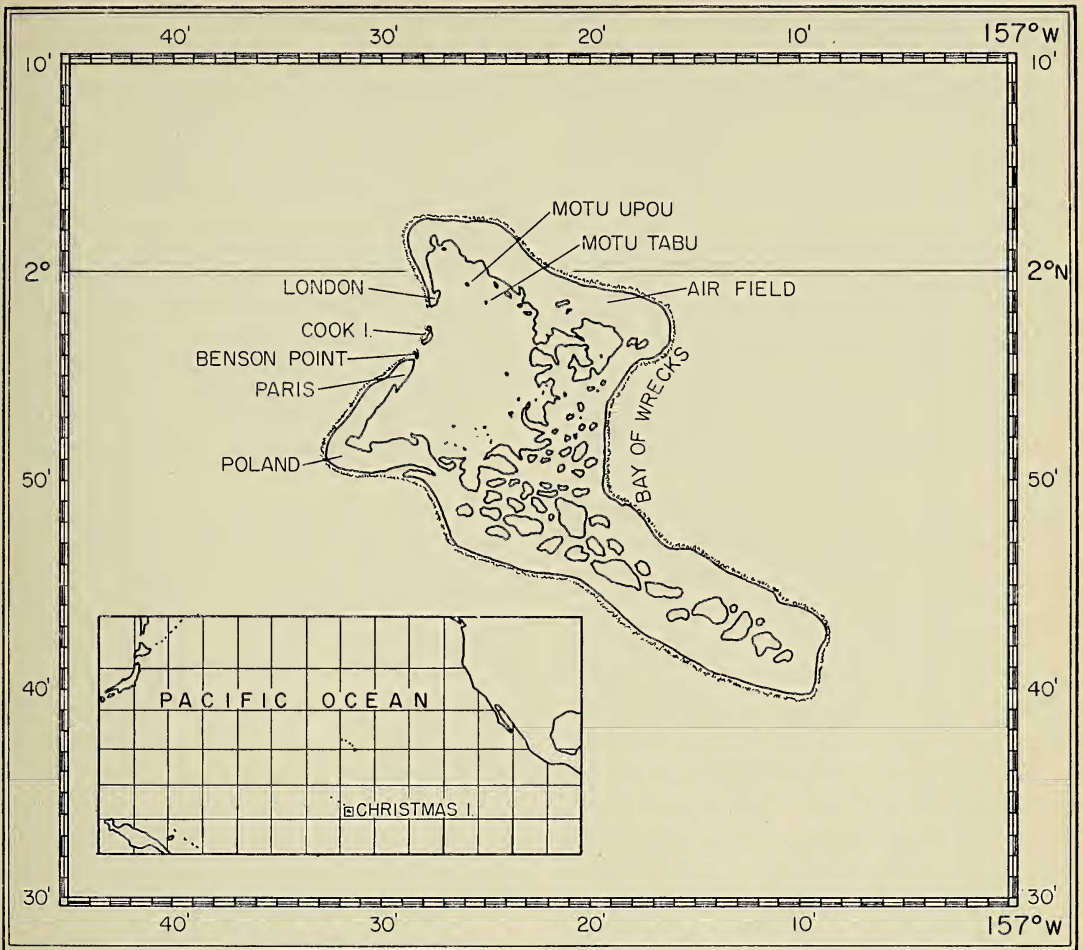


FIG. 1. Christmas Island, showing locations referred to in the text and the island's general position in the central Pacific (inset). (Drawn with modifications from USN Hydrographic Office Chart No. 1839.)

force for the plantation. There is no indigenous population.

A review of the literature describing the avifauna of Christmas Island begins with the account of its discoverer, Captain James Cook. On the afternoon of December 24, 1777, Captain Cook brought his ships the "Resolution" and the "Discovery" to anchor off the west shore of the island. On the next day—Christmas Day—he and his men went ashore at Cook Island (Fig. 1), a small patch of coral and sand separated from the main island. He states (Cook, 1784), "As we kept our Christmas here, I call this discovery Christmas Is-

land." The vessels stayed at anchor several days to permit the men to refresh themselves and to observe an eclipse of the sun. Cook reports that there were no traces of human beings having been there before and that the number of coconut trees did not exceed 30. He had the following to say about the animal life *ibid.*, p. 188–189):

Under the low trees above-mentioned, sat infinite numbers of a new species of tern, or egg-bird. These are black above, and white below, and with a white arch in the forehead [apparently sooty terns]; and are rather larger than the common noddy. Most of them had lately hatched their young, which lay under old ones, upon the bare ground. The rest had eggs; of which they only lay one, larger than that of a pigeon,

bluish and speckled with black. There was also a good many common boobies; a sort that are almost like a gannet [most likely the blue-faced booby]; and a sooty or chocolate-coloured one, with a white belly [the brown booby]. To this list we must add men-of-war birds; tropic-birds; curlews; sand-pipers; a small land-bird like a hedge sparrow [the kokikokiko, as named by the Gilbertese]; land crabs; small lizards; and rats.

The whaling ship "Tuscan" stopped at Christmas Island in May, 1835. Bennett (1840) gives an interesting account of the visit and states that, "Here and there among the low thicket scrubs are vast rookeries of aquatic birds, whose clamour is deafening." He mentions "sooty terns," "red-tailed tropic birds," "pure snow white petrels," probably white terns, "boobies," blue-faced boobies from the description, other "terns," probably noddies, "frigate birds," "petrels," "curlews," bristle-thighed curlews, "quail," probably golden plover, and a "sparrow-like land bird," the kokikokiko.

Streets (1877) visited Christmas Island in the vessel "Portsmouth" during the course of the United States North Pacific Surveying Expedition of 1873-75. Nine species of birds were reported and a collection was made. Father Emmanuel Rougier (1914), who at one time held a lease on the island, has published one of the most complete descriptions of Christmas Island, including its flora and fauna. He lists the following birds: frigate bird, sooty tern, grey-backed tern, Necker Island tern, Hawaiian tern, noddy tern, white tern, Christmas Island shearwater, red-tailed tropic bird, blue-faced booby, red-footed booby, and the kokikokiko (a small land bird), a total of 12 species. Kirby (1925) reports 11 species of sea and shore birds (including the bristle-thighed curlew, wandering tattler, and golden plover) plus several kinds of migratory ducks (which he does not name) as occurring on the island. He states that birds have been greatly reduced in number (prior to 1925) throughout the Line Islands as a result of land clearing and other disturbances by man. In 1921 the Whitney Expedition of the American Museum of Natural History carried on an investigation of the birds of

Christmas Island. Specimens of the kokikokiko, *Conopoderas aequinoctialis aequinoctialis* (Latham), collected at this time have been described by Murphy and Mathews (1929).

The following is a list, with a few life-history notes, of the birds seen by the author during his stay on Christmas Island from October 23 to December 9, 1953. In general, Peters (1931, 1934) has been followed in respect to scientific names.

*Puffinus nativitatus* Streets, Christmas Shearwater. Abundant. Observed nesting with eggs and young on the islets of Motu Tabu and Motu Upou within the lagoon. Nests were in shallow tunnels or depressions overhung with grass or low shrubs.

*Pterodroma alba* (Gmelin), Phoenix Petrel. Abundant. Observed nesting with eggs (Fig. 2d) and young on the islets of Motu Tabu and Motu Upou. This petrel could be seen throughout the day, flying low over the land and lagoon, and was more commonly seen over land than was the Christmas shearwater. Nesting habits were the same as for that species.

*Nesofregatta albigularis* (Finsch), White-throated Storm Petrel. Uncommon. Observed near shore (October 22) when we were approaching the island from the north, and seen on several occasions flying over the lagoon and outer beach. One bird of this species was found nesting, with one egg, on the islet of Motu Tabu. The egg was in a shallow depression overhung by a thick cover of grass.

*Phaethon rubricauda melanorhynchos* Gmelin, Red-tailed Tropic Bird. Abundant. Observed nesting with eggs and young (Fig. 2c) throughout the island. Egg usually was placed under the low shrubs of *Scaevola* or the larger *Tournefortia*.

*Sula sula rubripes* Gould, Red-footed Booby. Abundant and generally distributed throughout the island. Nests with eggs and young (Fig. 2e) were observed principally in *Tournefortia* trees.

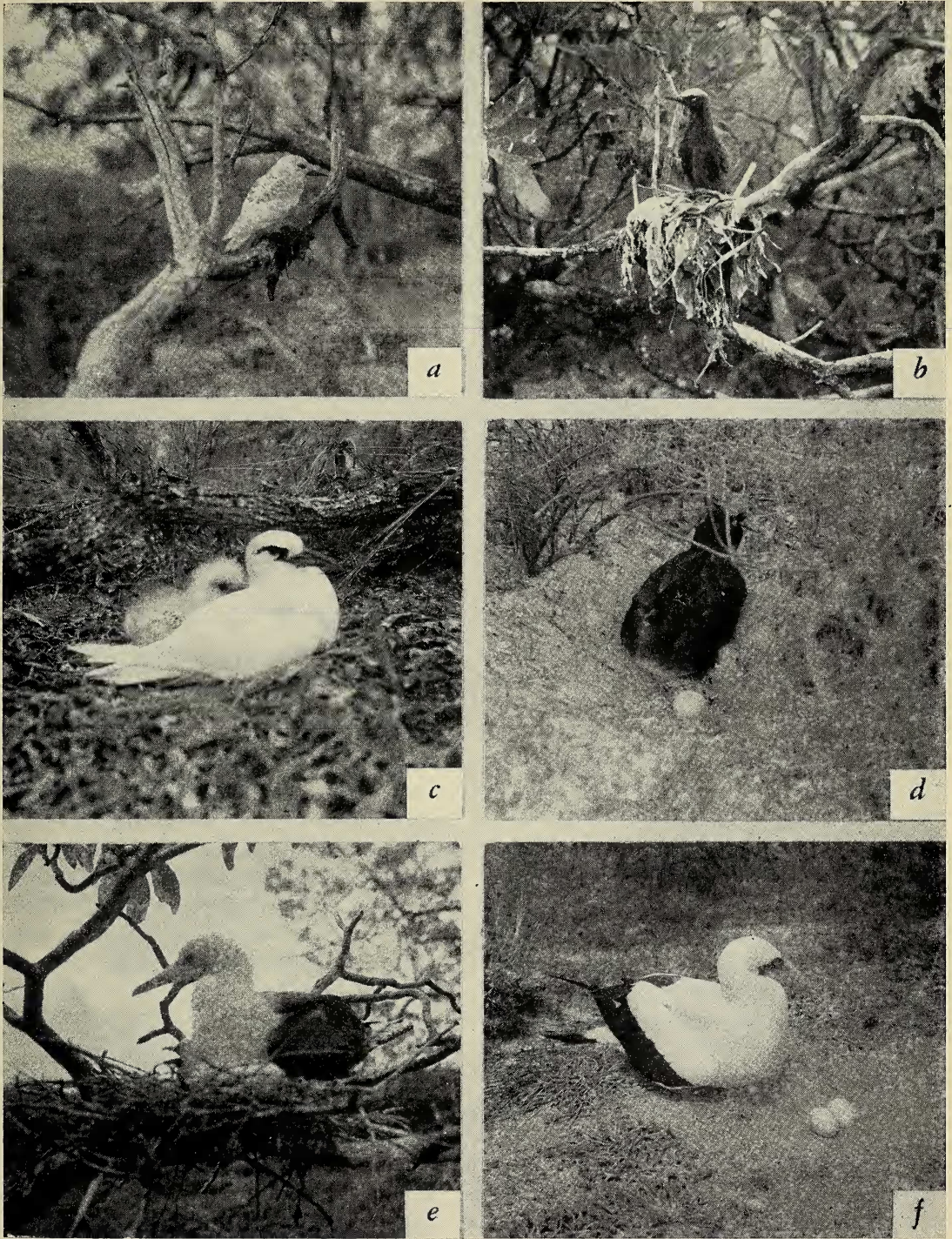


FIG. 2. Some of the birds of Christmas Island; photographed by the author. *a*, Young white tern on the remains of a nest of the white-capped noddy; *b*, young white-capped noddy on the nest; *c*, red-tailed tropic bird with young; *d*, Phoenix petrel with egg; *e*, red-footed booby with young; *f*, blue-faced booby with eggs.

- Sula dactylatra personata* Gould, Blue-faced Booby. Common but considerably less so than *S. s. rubripes*. Eggs and young were observed principally in the less visited areas. The eggs are deposited on the ground in a slight depression with no nesting materials (Fig. 2f). A booby of this species was seen setting on two eggs on October 28, one of which hatched on December 8 indicating that the incubation period exceeds 42 days.
- Sula leucogaster plotus* Forster, Brown Boody. Common in certain areas, such as the Bay of Wrecks and Benson Point. No eggs or young were seen.
- Fregata minor palmerstoni* Gmelin, Frigate Bird. Abundant, but not observed to be nesting. These birds seemed to make their living primarily at the expense of the boobies, which they would attack by diving from a considerable height and continually torment until the unfortunate booby surrendered its food. Specimens in immature plumage were common.
- Sterna fuscata oahuensis* Bloxham, Sooty Tern. The most abundant bird on the island. Was present in large numbers in October but appeared in huge congregations in the latter part of November and started to nest in the first week of December. The main nesting areas were located in the northwestern part of the island, between Poland and Paris, on Cook Island, and on parts of the large southeastern peninsula.
- Thalasseus bergii cristatus* Stephens, Crested Tern. Common; not observed to be nesting. This is the largest tern of the Pacific and not previously reported for Christmas Island.
- Anous stolidus pileatus* (Scopoli), Common Noddy. Common but found with eggs only on Cook Island during our visit. Eggs were deposited on the ground under *Scaevola* shrubs.
- Procelsterna cerulea cerulea* (F. D. Bennett), Blue-grey Noddy. Abundant. Observed with eggs and young on Cook Island and Motu Tabu. The eggs were found in areas almost barren of vegetation.
- Anous minutus minutus* Boie, White-capped Noddy. Common. Was nesting with eggs and young on Cook Island, Motu Tabu and Motu Upou (Fig. 2b). The nest was constructed of leaves, twigs, and grass and placed in the *Tournefortia* trees.
- Gygis alba candida* (Gmelin), White Tern. Abundant. Observed with eggs and young (Fig. 2a) on Cook Island, Motu Tabu, and Motu Upou. The egg is deposited on a bare horizontal trunk or limb of the larger shrubs or trees. The eggs are easily dislodged and the writer returned many eggs, which had fallen to the ground, to their former location after flushing the incubating adult bird. These terns were observed returning to their young with what appeared to be four to six small fish lined up in their beaks. This feat has been noted many times and while it is thought that the tongue may assist in the operation, the details of the phenomenon still remain a mystery.
- Anas acuta tzitziboa* Vieillot, Pintail Duck. One or two ducks of this species were occasionally sighted in the ponds near the airfield. From the shore of the Bay of Wrecks, on November 18, a flock of about 20 birds thought to be pintails, were seen flying in off the ocean from the northeast.
- Pluvialis dominica fulva* (Gmelin), Pacific Golden Plover. Abundant. Occurring generally throughout the island even in the streets of the native village. In fact it seemed more abundant in the dry areas with little vegetation than along the beaches and mud flats. During the period of our visit birds were seen in a variety of plumage patterns from the dark-breasted breeding plumage to the light-breasted winter condition.
- Numenius tabitiensis* (Gmelin), Bristle-thighed Curlew. Common to abundant. Observed in many different habitats on the island, from the dry interior areas to the ocean and lagoon beaches.
- Heteroscelus icannus* (Gmelin), Wandering Tattler. Probably the most abundant shore

bird on the island, occurring almost everywhere near water.

*Arenaria interpres interpres* (Linnaeus), Turnstone. Small flocks of these birds were seen on three occasions at the ponds near the airport.

*Crocethia alba* Pallos, Sanderling. One bird of this species was seen near London Village on the morning of November 7.

*Larus delawarensis* Ord, Ring-billed Gull. An immature specimen of this species was sighted in the lagoon behind London Village on November 15. It was examined at close range twice that day and again the next two days, but not seen thereafter. This bird is certainly a rare visitor to the central Pacific and the author is not aware of any previous record of the species for the Line Island group.

*Conopodera aequinoctialis aequinoctialis* (Latham), Kokikokiko. Common in the higher and more dense growths of *Tournefortia*. Old nests were found but none containing eggs or young. This species is flycatcher-like in appearance and is the only native land bird on the island. These birds stayed close to cover and were rarely seen in flight.

Although the author was in the field every day during the 7-week stay and covered the island rather thoroughly several times, except for the long peninsula extending to the southeast, it is very probable that the above list is not complete for the period of our visit. For example, the wedge-tailed shearwater (*Puffinus pacificus chlororhynchus* Lesson), one of the most abundant of the Procellariidae in the mid-Pacific, is reported to nest on the island (Alexander, 1928; Murphy, 1951) but was not seen there during our visit. The gray-back tern (*Sterna lunata* Peale) is supposed to occur throughout Oceania (Alexander, 1928) and has been observed on Christmas Island (Rougier, 1914). We believe we sighted this bird on a few occasions but were not able to identify it with certainty. The white-tailed tropic bird (*Phaethon lepturus dorotheae* Math-

ews) has been observed by the author on Fanning and Washington islands but not on Christmas, and according to Kirby (1925) it does not occur there. The author has also admired the brightly colored parakeets, *Vini kublii* (Vigors), on Fanning and Washington islands but did not find them on Christmas and probably they have never become established there (Tristram, 1883). The black-footed albatross (*Diomedea nigripes* Audubon) is common in the temperate and subtropical North Pacific and has been observed by the author as far south as 7° N. latitude (on December 14, 1953). It may occasionally visit the Line Islands area, but as yet we have not encountered it there on any of the several POFI cruises from 1950 to 1954.

Except for the golden plover, tattler, and curlew, there was a general lack of shore birds on the island during the period of our stay. Ducks also were scarce. About the middle of November, Mr. Phil Palmer of Fanning Island, which is about 150 miles northwest of Christmas, reported that a large number of ducks had just arrived on that island during a rainstorm. Apparently none of these birds reached Christmas.

Some information of interest and value was obtained from Latia, the "old man" of the island. He reported that on Christmas Island the sooty terns have two nesting periods: a mid-winter period from December to March, and a mid-summer period from June to August. About equal numbers of birds take part in each nesting. The red-tailed tropic birds nest from June to January and the frigate birds from December to June. There are some shearwaters and petrels nesting throughout the year. The boobies have eggs and young over a good part of the year, particularly during the fall and winter months. Usually a few ducks show up each winter but never in great numbers. Mr. Richard Cooper, British Officer for the Line Islands, reported that the small land bird, called the "kokikokiko" by the Gilbertese, lays its eggs in the summer months.

In summary, 22 species of birds were iden-

tified on Christmas Island during the period October 23–December 9, 1953. Of this number, 11 species were observed with eggs or with eggs and young. The author believes this to be the first report of the occurrence of the crested tern and the ring-billed gull on Christmas Island or for the Line Island area.

## ADDENDUM

Since the submission of this manuscript the author has made another visit to Christmas Island, June 5 and 6, 1954. Other duties prevented a thorough survey of the Island, but through the courtesy of British District Officer Percival Roberts, a short trip was made to the islet of Motu Tabu. Species observed nesting with eggs and young were the Christmas shearwater, white-capped noddy, common noddy, white tern, and red-tailed tropic bird. The Phoenix petrel was brooding eggs, but no young were seen. The blue-grey noddy was quite abundant on the islet, but no eggs or young could be found. Sooty terns, crested terns, frigate birds, and red-footed boobies were observed flying over the lagoon. Some of the Gilbertese plantation staff informed us that the sooty terns had not yet started to nest but had already begun to congregate on the main island for their summer nesting season.

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